

REMARKS

Applicant has amended the independent claims to call for “a body suit having tactile actuators, the actuators receiving the tactile signals from the corresponding tactile sensors on the robot from the communications network, wherein the tactile sensors and the corresponding tactile actuators are calibrated in connection with variable sensitivity associated with different regions of a human.” Support for this amendment is found at least on page 7, lines 20-26 and generally through out Applicant’s specification, as filed.

35 U.S.C § 102

The examiner rejected claims 1-5, 8-16, and 18-21 under 35 U.S.C. 102(b), as being anticipated by Yee et al. (US 6016385). The examiner stated:

(Claim 1) Yee discloses a virtual reality encounter system comprising: a humanoid robot having tactile sensors positioned along the exterior of the robot (column 7, lines 49-58), the sensors sending tactile signals to a communications network (column 4, lines 5-8); and a body suit having tactile actuators (column 8, lines 10-15), the actuators receiving the tactile signals from the communications network (column 4, lines 5-8).

Claim 1 is allowable over Yee. As amended, claim 1 is directed to: “a virtual reality encounter system including a humanoid robot having tactile sensors..., the sensors sending tactile signals to a communications network... a body suit having tactile actuators, the actuators receiving the tactile signals from the corresponding tactile sensors on the robot from the communications network, wherein the tactile sensors and the corresponding tactile actuators are calibrated in connection with variable sensitivity associated with different regions of a human.”

Yee neither describes nor suggests “a body suit having tactile actuators, the actuators receiving the tactile signals from the corresponding tactile sensors on the robot from the communications network, wherein the tactile sensors and corresponding tactile actuators are calibrated in connection with variable sensitivity of a human.”

Claims 2-5, 8 and 10-12 are allowable at least for the reasons discussed in claim 1.

As for claims 9 and 18, the examiner also argued that: “(Claims 9 and 18) Yee further discloses wherein the robot body includes an eye socket and a camera is positioned in the eye socket (column 5, lines 11-37).” Yee

explicitly states that video cameras 22 are hidden inside the head dome 29 together with range/proximity sensors 83 and long range communications antenna 84.¹ However, the camera is not positioned in the eye socket of the robot.

Claim 13 is allowable because Yee neither describes nor suggests: a method of having a virtual encounter including sending tactile signals to a communications network from tactile sensors coupled to a humanoid robot, ... positioned along the exterior of the robot; and receiving the tactile signals ... at a body suit having corresponding tactile actuators, wherein the tactile sensors and the corresponding tactile actuators are calibrated in connection with variable sensitivity associated with different regions of a human.", for analogous reasons as in claim 1.

Claims 14-16 and 18-21 are allowable over Yee for analogous reasons given by claim 1 and/or the respective dependent claims.

35 U.S.C § 103

The examiner rejected Claims 6, 7 and 17 under 35 U.S.C. 103(a) as being unpatentable over Yee et al, in view of Abbasi, US 6,786,863. The examiner argues that:

Yee discloses the virtual reality system describes wherein one user has control of a robot that duplicates the actions and motion of the operator and senses the condition of the environment of the robot, transmitting the information back to the operator to modify the operation of the robot accordingly (column 2, line 65-column 3, line 25). Yee does not describe a robot at a first location and a second set of goggles at a second location. However, Abbasi teaches a remote physical contact system and method wherein a first surrogate is at a first location, second surrogate in a second location, the second surrogate having a second microphone and second camera (Figure 1, elements 35B, 40B and 45B); a second display to receive the video signals from the first camera and second earphone to receive the audio signals from the first microphone (figure 1, elements 25, and figure 6); and further comprising a first communication gateway in the first location a second communication gateway in the second location, the second processor connected to the first processor via a network (computer network 30 between computers 15 and 25). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system and method of Yee with the teachings of Abbasi because as Yee suggests using a robot at a second location allows the operator to experience the environment of the robot "exactly the same way that a human would sense the conditions, sends signals to the operator which the operator senses in exactly the same way as if he were to take the place of the robot (column 1, lines 20-27)". Further as Abbasi teaches the use of remote surrogates expand the notion of teleconferencing or

¹ Yee at col. 5, line 66-col.6, line 6, and Figure 12.

computer communications by adding a capability to engage in all types of physical contact (column 1, lines 58-64).

Applicant contends the combination of Yee and Abbasi constitutes impermissible hindsight. Specifically, Yee discloses a tele-operated intelligent robot system which is usually used to operate robots in place of humans under extreme conditions. Therefore, Yee is not concerned with using a robot as a surrogate to encounter a second user. Abbasi by contrast, is directed to a method for enabling remote physical interactions among different people. Apparently, the purpose / problem being solved ("nature of the problem"), function and structure of Yee and Abbasi are not aligned, and combination of prior art with different principle of operation is impermissible.

No combination of Yee and Abbasi would suggest the arrangements of claims 6 and 7, namely, that "the robot is at a first location and the set of goggles is at a second location ... a second humanoid robot in the second location, the second robot having a second microphone and a second camera and a second set of goggles to receive the video signals from the first camera and a second earphone to receive the audio signals from the first microphone (claim 6)." In addition the combination of Yee with Abbasi would not suggest the features of claim 17 where "the communications network comprises a first communication gateway in the first location and a second communication gateway in the second location, the second processor connected to the first processor via a network."

It is believed that all the rejections and/or objections raised by the examiner have been addressed.

In view of the foregoing, applicant respectfully submits that the application is in condition for allowance and such action is respectfully requested at the examiner's earliest convenience.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has (a) addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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